Space Weather Forecast

Issued on Tuesday 22 October 2024 at 01:11 Local

This forecast provides a four-day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

---

Space Weather Forecast Headline: Initial chance of G1/Minor Geomagnetic Storms. Increasing chance of radio blackouts this week.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Activity was low and confined to Common-class flares.

There are now ten sunspot regions on the facing side of the Sun, with a small magnetically unipolar spot decaying in the northeast in the period. The main changes observed in the period were areal decay in the trailing spots of a large region in the southwest, followed later by some minor intermediate spot growth. A second large spot group saw development in its trailers for a time before these began a slight areal decay, while a third smaller magnetically bipolar sunspot region emerged and showed a spreading tendency in the southeast.

No Earth directed Coronal Mass Ejections (CMEs) were in evidence in the period.

Solar Wind / Geomagnetic Activity: Solar winds were indicative of a slow regime. The solar wind speed declined within background levels. The number of particles in the solar wind and their associated magnetic field were both unremarkable, with the north-south component of the field generally small-scale and not anti-aligned with Earth's field for protracted periods.

The net result of the above solar wind measures was provisionally quiet geomagnetic indices.

Energetic Particles / Solar Radiation: No solar radiation storms were observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Activity is likely to be low, with a chance of moderate activity from isolated Moderate-class flares initially. Activity is then likely to increase through the period, with the return of several notable active regions over the eastern solar horizon: probably becoming Moderate from midweek UTC.

Solar Wind / Geomagnetic Activity: There are no Earth-directed CMEs in the forecast. A fast wind regime may become established from a centre-west 'coronal hole' within the current UTC day, with a chance of peak Minor geomagnetic storm (G1) conditions, before activity declines to mainly quiet levels after midweek UTC.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 370 900 0100 Email: enquiries@metoffice.gov.uk

© Crown Copyright 2024. All Rights Reserved.

Energetic Particles / Solar Radiation: No solar radiation storms are expected.

Geomagnetic Storms

Geomagnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	50	20	1	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X-Ray Flares

X-Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 (M Class)	No	40	60	60	60
Very Active	R3-R5 (X Class)	No	5	10	10	10

Solar Radiation Storms (High Energy Protons)

Radiation Storms Probability (Exceedance)	Level ($cm^{-2}sr^{-1}s^{-1}$)	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	5	5	5	5
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and/or 50 MeV ≥ 10pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 370 900 0100 Email: enquiries@metoffice.gov.uk

© Crown Copyright 2024. All Rights Reserved.